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EXAMINER

SCHWARTZ, PAMELA R

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1774

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/622,229  
Filing Date: July 18, 2003  
Appellant(s): BRINGLEY ET AL.

**MAILED**  
AUG 28 2006  
**GROUP 1700**

\_\_\_\_\_  
Paul Leipold  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed June 12, 2006 appealing from the  
Office action mailed November 7, 2005.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is incomplete. A correct statement of the status of the claims is as follows:

This appeal involves claims 1, 10, 13-21 and 25.

Claim 1 has been amended subsequent to the final rejection.

Claims 2-9, 11, 12 and 22-24 have been canceled.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: Claims 3-5 were

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canceled in the Amendment After Final mailed February 7, 2006 and therefore not subject to this appeal.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,365,264	DARSILLO ET AL.	4-2002
3,007,878	ALEXANDER ET AL.	11-1961
2004/0197498	BI ET AL.	10-2004

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1, 10, 12-21 and 25 stand finally rejected under 35 U.S.C. 102(b) as being anticipated by Darsillo et al. (6,365,264). The reference discloses a recording medium having a glossy coating thereon with first and second groups of particles (see the abstract). The first particles may be pyrogenic silica and may be treated to make them cationic with aluminum chlorohydrate (see col. 4, line 59 to col. 5, line 10). This appears to be a preferred embodiment as set forth since the reference states that "[i]t is sometimes preferred that cationic particles be included in the glossy coating" (col. 5, lines 1-2). The treatment should inherently create an alumino silicate shell on the particles. The ratio of the groups of particles to each other overlaps with those instantly claimed (see the abstract). The second group of particles may be colloidal silica and may be

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surface treated (see col. 8, line 51 to col. 9, line 9). The same language with respect to making the surface cationic is used with respect to the second group of particles. Therefore, coating silica particles to make them cationic would also be considered a preferred embodiment with respect to this second group of particles. The reference discloses treatment with either an inorganic or an organic cationic modifier. The reference discloses for this purpose inorganic salts, such as aluminum chlorohydrate, organic silanes, or a polymer such as a polyamine (see col. 5, lines 1-10). The first group of particles has a primary particle size of less than about 100 nm with aggregates of from about 100 to about 500 nm. The second set of particles is less than about 50% of the mean diameter of these aggregates (see the abstract). The reference is concerned with gloss but does not measure gloss in the terms set forth in the claims. However, based upon the discussion of gloss in col. 3 of the reference, it would have been obvious to one of ordinary skill in the art to control and determine gloss of the medium in order to achieve desired visual results. The medium of the reference would be inherently porous (see col. 7, lines 6-9) although the reference does not appear to set forth the porosity of the layer. Based upon the awareness of the importance of this property by the applied art, it would have been obvious to one of ordinary skill in the art to optimize the porosity of the layer in order to obtain desired ink absorption capacity.

Due to the small particle range set forth at col. 5, lines 11-42, the first group of particles would inherently meet the standard deviation values of claims 13 and 14. Furthermore, the reference suggests that both sets of particles can

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have diameters that are all substantially the same (see col. 6, lines 51-63 and col. 8, lines 14-28). The larger particles may be pyrogenic or fumed silica. The smaller particles may be colloidal silica. The colloidal silica set forth in Example 1 is spherical. Pyrogenic silica is normally formed into chains that would be of irregular shape. Therefore, these aspects of the invention would have been inherent. Darsillo et al. suggest appellants' advantages of gloss and porosity by disclosure of both of these properties. With respect to fade resistance, the reference preference to inclusion of particles that have been treated to be cationic inherently addresses this issue. It is well known in the art that cationic materials will fix anionic dyes commonly used in ink jet recording, making them less likely to migrate through the medium and less subject to bleeding, fading, etc.

2. Claims 1, 10, 12-21 and 25 stand finally rejected under 35 U.S.C. 103(a) as being unpatentable over Darsillo et al. (6,365,264) for reasons set forth above and further in view of Bi et al. (2004/0197498) and Alexander et al. (3,007,878) for reasons given below. Bi et al. disclose treating silica particles to make them cationic for inclusion in an ink jet recording sheet [0027-0031]. The treatment may be with a hydroxyl-containing polyvalent metal salt or a cationic resin. The reference discloses that such a polyvalent metal salt is disclosed in Alexander et al. (3,007,878) and incorporates this reference. Figure 1 of Alexander et al. shows the surface of silica that has been complexed with a metal oxyhydroxy material. This complex appears consistent with applicants' claim 25. Based upon the preference of the primary reference for cationic treatment of silica, the

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disclosure of Bi et al. that the teachings of Alexander et al. are relevant to treatment of silica to render it cationic for inclusion in ink jet recording media, and the teachings of Alexander to formation of what is an aluminum oxyhydroxy complex, it would have been obvious to one of ordinary skill in the art to treat the silica of the primary reference as set forth in Bi et al. and Alexander et al. to render the silica cationic.

#### **(10) Response to Argument**

Appellants' showings in Table 1 have been given careful consideration but are not persuasive since comparisons are not made with respect to the closest prior art. The teachings of Darsillo et al. are not limited to the examples. Since Darsillo et al. clearly indicate a preference for cationically treated particles, comparisons with only untreated particles or ratios of small to large particles that do not permit the dense packing preferred by the reference and do not represent the preferred ratios of groups of particles set forth in col. 9 of the reference are unpersuasive. All of the examples of the reference appear to include at least one group of particles that have been surface-treated. The results are also not persuasive because there are too many variables changed in these showings. Not only is there a difference in whether or not the particles have a shell, but adding the shell also changes the particle diameters of both the small particles and the large particles. Changes in results cannot be attributed to the presence of the shell because two other values are varied at the same time, i.e. the size of the small particles and size of the large particles. Of course, by changing the particle sizes, the particles will be packed differently and changes in absorption

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and gloss can no longer be attributed to whether or not the particles have a shell.

In order for the showings to demonstrate the results that appellants intend for them to demonstrate, the shelled and unshelled particles used in the examples should be the same size. Appellants argue that the shell only changes particle sizes by about 10%, however, the impact of this change in particle size is compounded when packing arrangements and ratios of small to large particles are taken into consideration. To overcome the lack of constancy of the particle sizes in their examples, appellants would have to demonstrate what they have only alleged, i.e. that the change in particle size due to the shell is not significant enough to impact properties of gloss, porosity and image fade.

While not disclosing gloss in the terms set forth by appellants, the Darsillo et al. reference does disclose the importance of gloss and measures the 75° specular gloss in lieu of the 60° gloss recited by appellants. This is a difference in measurement technique. The reference has identified the property, its desirability, and how to measure the property. Thus it would have been obvious to one of ordinary skill in the art to optimize this property in accordance with the reference. Appellants allege that the gloss values of the reference are different than those instantly claimed, but do not demonstrate this to be true. The examiner is aware that the reference measures gloss differently than do appellants, but the reference appears to set forth a preference that the surface be as glossy as possible, only setting forth minimum values of gloss. Based upon this disclosure, the examiner maintains that it would have been obvious to one of ordinary skill in the art to optimize the property of gloss by maximizing



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gloss while meeting other required limitations of the medium. Finally, appellants allege that Darsillo et al. obtain a glossy surface by calendaring. Use of this process is not precluded by appellants' claims.

The reference also discloses porosity and its importance. Measurement of the property is disclosed at col. 5, line 60 to col. 6, line 22 of Darsillo et al. From the detailed disclosure of the reference concerning porosity, how to measure it and how to obtain it, it would have been obvious to one of ordinary skill in the art to determine and control porosity of the layers in order to allow the desired degree of ink absorption. Appellants argue that the porosity disclosed by the reference is of particles rather than of an image receiving layer. This is incorrect. The paragraph at the bottom of page 5 of the reference discloses contacting liquid "with a predetermined area of the glossy coating of the recording medium of the present invention." At col. 6, the reference continues by measuring liquid absorption "as a function of porosity" which in turn is measured "by measuring the total intrusion volume of a liquid (e.g., mercury) into the glossy coating applied to a non-porous substrate (e.g., polyethylene)." It is the property of the coating, not of the particles, that is measured. Appellants' claims are obvious over the prior art because they merely optimize several conventional properties which are all identified in the applied prior art.

Appellants argue that the reference does not disclose core shell particles. In order for a particle to be core shell, appellants assert that the surface has to be chemically modified with a distinct composition from the core. This is clearly described by the reference at col. 5, lines 1-10. The reference specifically uses

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the term “surface modification” to describe this process. Contrary to appellants’ arguments, when the reference states, “it is sometimes preferred” it is stating a preference for cationic particles. The reference discloses both inherently cationic particles and particles that become so through surface modification with a distinct composition, i.e. core/shell particles.

With respect to image fade resistance, while the term is used in the specification, it is not defined therein. Therefore, it is not limited to issues of light-fastness and oxidative resistance, but should be given its broadest reasonable meaning. Inclusion of cationic materials in ink receptive layers does reduce image fade. Cationic agents fix anionic dyes by adsorption making the dyes less likely to react with undesirable oxidative species. This makes the material fade resistant as well as preventing bleeding in the medium. Since appellants do not have a limiting definition of image fade in their specification, they must rely on the more generic use of the term known in the art. There is no discussion in the specification of image fade being related or only relevant to dry conditions. The specification teaches that image fade is prevented by a material that provides resistance to oxidation and light. The materials at the top of col. 5 of the reference fulfill this function and fit within the broad groups recited by claim 1.

Appellants characterize their invention as a “seven feature invention.” As filed, the invention of claim 1 was a “one feature invention” and no criticality has been demonstrated by combining seven limitations which are all disclosed or suggested by the prior art.

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It is noted that Appellants' arguments concerning the combination rejection completely rely on their position concerning the primary reference.

These arguments have been responded to above.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

  
Pamela R. Schwartz

Conferees:

Rena Dye, SPE Art Unit 1774 .

Jennifer Kolb-Michener

